COST and MANAGEMENT

VOL. XXVI MAY No. 5

GUIDES TO HEALTHY MANAGEMENT
By G. I. MacKenzie 163

Mr. George Ian MacKenzie is Industrial Advisor to the Bank of Montreal and President of the Society of Industrial & Cost Accountants of Canada. A native of Nova Scotia, he is a graduate of Mount Albion University and Nova Scotia Technical College, receiving the degree of B.Sc. in Electrical Engineering.

BRIDGING THE GAP BETWEEN ACCOUNTING AND MANAGEMENT
By P. W. Wright 171

Mr. P. W. Wright is Secretary-Treasurer of the Shawinigan Chemicals Co. Ltd., and a Past President of the Society of Industrial & Cost Accountants of Canada (1942-43). A Past President of the Society of Industrial & Cost Accountants of Quebec. He was the first chairman of the Co-Ordinating Educational Committee and has served the Society in many capacities throughout 25 years of membership.

WHAT IS STATISTICAL QUALITY CONTROL?
By D. H. W. Allan 181

Mr. Allan was born in Toronto and studied at the University of Toronto, graduating in 1942 with the B.Sc. degree in Metallurgy. He enlisted with the R.C.E. and went overseas with the rank of lieutenant. Returning to civilian life in 1945, he went to work for the Steel Company of Canada and after a period of training he joined the metallurgical staff. After a period of three years spent in developing statistical methods of quality control, he was appointed Assistant Metallurgist, Processing Division.

REGULAR DEPARTMENTS

SOCIETY NOTES 152
NEW MEMBERS 153
CHAPTER NOTES 155
C. & M. ROUND-UP 158

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SOCIETY NOTES

THOMPSON MEMORIAL SCHOLARSHIP TO BE AWARDED

The Council of the Saskatchewan Society has established the Thompson Memorial Scholarship to perpetuate the memory of the late Dean Joseph H. Thompson.

The scholarship will be awarded to the student obtaining the highest marks in the Primary Subjects. Where a student has been granted an exemption in one of the subjects, the pass mark for that subject will be used in calculating the total marks for making the award. The scholarship will not be awarded in any year in which the highest average mark is less than 70%.

The scholarship will be a bronze medal engraved with the words, "Thompson Memorial Scholarship", together with a certificate to the value of the two intermediate subjects.

This is a very fitting tribute indeed to the memory of one who has contributed so much to the advancement of accounting education and who made possible the lecture classes for giving instruction to our students in the Province of Saskatchewan.

TEXT OF PRESIDENT'S ADDRESS IN THIS ISSUE

In his tour about the country meeting with the Society's 29 Chapters, President George MacKenzie attracted a lot of interest in his address entitled "Guides to Healthy Management".

Members and the large number of guests who heard him at each meeting were more than impressed with the manner in which he dealt with a very complex subject in simple and precise terms which could be readily applied to small or large businesses. The local press in each instance carried a very comprehensive review of the talk.

The text of Mr. MacKenzie's address appears in this issue of Cost and Management, and to satisfy the many requests by non-members for copies, a supply of reprints are being made. Additional copies can be obtained from the office of the Society.

New Members

VANCOUVER CHAPTER

Miss Gertrude Morrill, Dept. of National Revenue

HAMILTON CHAPTER

Jack S. Gordon, Robertson-Irwin Ltd.
Miss Helen E. Pierce, Robertson-Irwin Ltd.
Robert L. Winegard, The Hoover Co. Ltd.
T. J. Hawes, Dominion Foundries & Steel Ltd.

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Roger Lefrancois, Quebec Power Co.
Adelard Lemary, Victor La Rochelle
Roland Leclerc, Ministere Provincial de l'Agriculture
Marcel Lavertu, 174 St. Vallier St., Quebec, Que.
Roland Ladouceur, Canadian Industries Ltd., Brownsburg, Que.
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Fernand Boucher, 38 Ste Anne St., Shawinigan Falls, Que.
Victorien Bolduc, 1064 2nd Ave., Quebec, Que.

Louis Boissonneault, Roberval, Que.
Raoul Beauchesne, 74 rue Richelieu, Quebec, Que.
Paul Bellavance, 65 rue Saint Jean Baptiste, Quebec, Que.
Robert Archer, 96 Marquette, Quebec, Que.
Paul Egide Arseault, Bonaventure, Co. Bonaventure, Que.

ST. MAURICE VALLEY CHAPTER

Miss D. Colette, Canadian Resins & Chemicals Ltd., Shawinigan Falls, Que.
Henri Courteau, Canadian Resins & Chemicals Ltd., Shawinigan Falls, Que.
Fred Cummings, Shawinigan Chemicals Ltd., Shawinigan Falls, Que.
J. L. Flageole, Shawinigan Chemicals Ltd., Shawinigan Falls, Que.
Fernand Gagnon, Canadian Resins & Chemicals Ltd., Shawinigan Falls, Que.
Roger Morin, Shawinigan Chemicals Ltd., Shawinigan Falls, Que.
Fernand Pelletier, National Revenue of Canada, Shawinigan Falls, Que.

REGINA-MOOSE JAW CHAPTER

H. E. Mytroen, Provincial Audit Dept., Regina, Sask.
A. J. Smith, c/o Radio Station CKRM, Regina, Sask.

Chapter Notes

MONTREAL CHAPTER

The Montreal Chapter met April 17th. 1952 at the Ritz-Carlton Hotel, Vice-Regal Suite.

Mr. A. N. Steiner, of J. D. Woods & Gordon Limited, was the guest speaker. His subject, "Marginal Costing", is a comparatively new costing theory although Mr. Steiner pointed out a number of concerns had been practising this system for years.

The speaker underlined the fact that Marginal Costing fundamentals are relatively akin to Differential Cost Analysis. Mr. Steiner was enthusiastic when he submitted the suggestion that Marginal Costs could be an extremely useful tool to Management for some types of business. This theory could open a new avenue of approach for the Sales Department when scrutinizing a sales order. No longer would orders be evaluated solely as to credit rating, but at what point would it no longer be profitable to handle the order.

Mr. Steiner issued a note of caution, stating that Marginal Costing is having a difficult time gaining universal acceptance because of the complex task of relating various semi-variable expenses to a somewhat fixed or static classification.

COST AND MANAGEMENT

The Annual Students' Night Dinner of the Montreal Chapter's 1951-52 season was made more important than usual by the presence of the Dominion President, Mr. Geo. I. MacKenzie, who was in the course of his tour of the various Chapters and Councils throughout the country.

The meeting proved to be one of the more interesting of the year and was headlined by Mr. MacKenzie's talk on "Guides to Healthy Management". Mr. J. N. Allan, Dominion Secretary, who was also present, outlined the growth and expansion of the Society and Mr. Everett Harrison, Chairman of the Montreal Students' Committee, provided a resume of the Committee's accomplishments, their aims and their hopes for the future.

The President's address to the meeting was a sound and able presentation of various factors in a balance sheet which could be assessed so as to indicate the degree of good management present and the consequent state of financial health of the particular company concerned. Inventory position was declared to be one of the more important factors and the speaker stressed the virtual necessity that this should be kept within limits reasonably consistent with the volume of business transacted.

All three talks were concise and very well presented and the generally high level attained in this respect was reflected in the interest and attention given by the audience.

The duties of the Chair were divided between Mr. J. G. Mock, Chairman of the Montreal Chapter, and Mr. Harrison and the latter headed the behind-the-scenes work of the Students' Committee which contributed greatly to the success of the meeting.

OTTAWA CHAPTER

Speaking at the regular monthly meeting of the Ottawa Chapter on March 20th, 1952, Mr. E. L. Hamilton, B.Comm., C.A., Assistant Treasurer, Canadian Industries Limited, Montreal, chose as his subject "Comparison of Government and Industrial Pension Plans".

Mr. Hamilton pleased the gathering with an interesting discourse and discussion of the problems arising with those responsible for the administration of Industrial Pension Plans as a result of Government Pension Acts applicable to persons of 65 years of age and over. In dealing with the need for integration of the various plans and suggestions for the coordination and control of benefits and costs, it was obvious to those present that they were being treated to the benefits of a thorough grasp and study of the question.

The speaker was introduced by Mr. E. G. Hamlyn, of Clark Dairy Limited, who, together with Mr. Fred W. Stremes, of the Treasury Cost Inspection and Audit Division, were introduced as two new directors of the Chapter. The speaker was thanked by Mr. J. Scott, of J. H. Connor and Sons, Limited.

Prof. W. J. McDougall, B.A., C.A., of Carleton College, announced details respecting the forthcoming Annual Convention of the Society in London in May.

The meeting was under the chairmanship of the treasurer, Mr. C. K. Wolff, Woods Manufacturing Company Limited, who spoke of the increased membership in the Chapter and the Chapter's first place position for the Fernie Trophy.

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C & M ROUND-UP

By N. R. BARFOOT, R.I.A.

OPPORTUNITIES — CANADA

Monthly, Canada's economy becomes more diversified, offering wider opportunities than ever before to young Canadians. In Canada's northland, to consider but one part of the country, lies the greatest raw material hope of the continent, and a firm basis upon which to build a major industrial nation.

Canadian industry, reflecting the defence effort, has been increasing 36% in volume since 1946 against a comparable rise in the United States of 29%, according to the Canadian Minister of Trade and Commerce. Transportation production industries have grown in Canada 53% and in the U.S. by 31%.

However, lest we grow complacent, American expansion in iron and steel at 73% was still far ahead of the Canadian figure of 36%.

ONE MILLION JOBS

A total of 918,233 jobs were filled by workers recruited by the National Employment Service in the 12-month period from December 29th, 1950 to December 27th, 1951.

Of the total placements made by N.E.S., 735,238 were regular placements, 155,497 were casual jobs and 27,498 were openings filled by workers brought to their jobs from other areas through the "clearance" system of the employment service.

This system is a systematic means of enlarging, when necessary, any particular labour recruiting area by circulation of job openings to local employment offices outside of the locality where the orders were first placed. When a special class of worker is required, orders may be circulated from coast to coast.

Included in the total placement figures were 14,344 jobs found and filled by workers with physical disabilities.

JUSTICE FOR ALL

Free legal aid for those unable to pay for it is the program of the Law Society of Upper Canada, the governing body of the profession in Ontario. It has counterparts in most of the other provinces of Canada.

There are 44 county law associations in the province and all but four have some form of legal aid organization.

The largest is in Toronto. To be eligible a person must have an annual income of less than $900, plus $200 for each dependent. Applicants appear before a clinic of lawyers each Monday night.

The first clinic was held on October 15th of last year. By year end 529 people had been interviewed and 163 of them referred to lawyers for assistance.

Most of those requiring help are involved in civil matters.

The idea of free legal advice is not new in other parts of the world and will certainly be a help to a great many in Canada.

MINES AND MINERALS

Interesting mining figures in Canada are:

First in world's production of nickel, asbestos, platinum and titanium.

Second in aluminum, gold, zinc and cadmium.

Iron ore production in 1951 — 4.7 million tons, except 20 to 25 million in a few years.

BRITISH COLUMBIA

Vast expansion to the extent of better than a billion dollars worth has focused the spot light on this interesting province. Here are a few quick estimates of the present and future industrial picture.

Forest industries expansion	350 millions
Aluminum development	550 millions
Mining and smelting operations	63 millions
Pipeline from Alberta	82 millions
Hydro power development	90 millions

Forest products include pulp, paper, veneer, cellulose and lumber, representing 13% of Canada's paper and pulp. Predictions are that eventually one-half of world requirements will come from B.C.

Exploration crews working over 26 million acres under permit have hopes of finding the next great Canadian petroleum fields.

B.C. production picture in 1951 in terms of dollars was:

Personal income	$1,480 millions
Retail sales	1,130 millions
Agriculture	155 millions
Manufacturing	1,070 millions
Construction	385 millions
Mining	165 millions
Forestry	525 millions
Dollar output per worker per year	$8,978
Electrical equipment worker	4,817
Paper products worker	6,961
Misc. manufacturing worker	3,583

Comparative mineral output in dollars:

1938	441.8 millions
1948	820.8 millions
1951	1,228.0 millions

AUTOMOTIVE

Recent announcements by two of the big three in the automotive field are further indications of thought about Canada's future big industry.

A survey made by General Motors of Canada Ltd., concludes that a population of 20 millions is indicated in 15 years. Tangible evidence is their plans for a huge truck plant in Oshawa based on their estimate of truck consumption rising from 100 to 140 thousand in the next ten years.

Ford of Canada had previously announced a huge plant for Oakville, Ontario, as expansion of their Windsor facilities.

Transportation is basic in Canada's indusrial and civil development.

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CHARTERED ACCOUNTANTS
Gordon S. J. Payne, C.A. Donald R. Patton, C.A.
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31st Cost and Management Conference

VANCOUVER, B. C., JUNE 24th, 25th, 26th

TECHNICAL SESSIONS SPEAKERS

Don Patton, B.Com., C.A., R.I.A. — Payne, Patton & Pugsley — "Managing To-day's WORKING CAPITAL Dollar".

Norman Paquette, B.Sc., M.M.E., Vice-President, Stevenson & Kellogg Ltd. — "Managing To-day's COST Dollar".

Dr. Joseph E. Crumb, Professor of Economics, University of B.C. — "Managing To-day's PUBLIC Dollar".

J. Lorne McLean, B.A., C.A., Vice-President and Treasurer, B.C. Power Ltd. — "Managing To-day's INVESTMENT Dollar".

J. F. Carroll, Dr.Com., General Manager, Kelly Douglas & Co. Ltd. — "Managing To-day's MERCHANDISE Dollar".

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The Impact of Budgets on People

The Controllership Foundation

(A Review)

The study develops the impact of budgets in the plant through pressure. Increase of tension, resentment and mistrust can result from too strong management pressure. If too highly developed, this pressure sends factory individuals into self-protective groups. The result is failure of supervision, inefficiency and aggression.

Finance staffs tend to feel successful only if they can find fault with the budget and therefore with the factory supervisor.

Factory supervisors as a result of ego deflation through failure, tend to blame all troubles and inadequate leadership qualities on the neutral thing, the budget.

So here we have the attitudes of finance people and supervisors psychologically at variance and internal pressures set up that spell poor output, resentment of managament and above all the castigation of budgets.

Answers are never easy to find in human relations involving pressures. However, participation is known to be one key to the proper relationship, and not participation in the sense of a quick run-over and the obtaining of a signature so that he, the factory supervisor can't say he didn't accept it and didn't know what he promised.

True participation means that people can be spontaneous and free in their discussions. Changes must be accompanied by finding out the present feelings and the value of the supervisors to the budget. Then old feelings must be unfrozen and he must be helped through his group to discuss and accept the new budget. Above all he must at one and the same time feel part of the supervisory management group, and also an individual who can be what he really is, or wishes to be.

The narrow-mindedness and short-sightedness of accountants must be changed. They should be educated to understand people and trained to sell their figures and facts. This particular study has pointed up two of the major faults of the accounting profession, that of poor salesmanship and lack of training and understanding of human nature. A study of a publication such as the above would do much to make accountants see themselves as the factory sees them.

The Controllership foundation has prepared a study entitled "The Impact of Budgets on People". This searching and very frank exposition should be carefully studied by everyone concerned with budget preparation and control. It is a study in the human relations side of the acceptance of standards and goals by plant supervisors. It is the result of a wide study involving the personnel in four typical industrial organizations.

In broad outline it deals with the mental reaction of both budget and factory supervisors to budgets as well as an analysis of budget pressures exerted on plant people.

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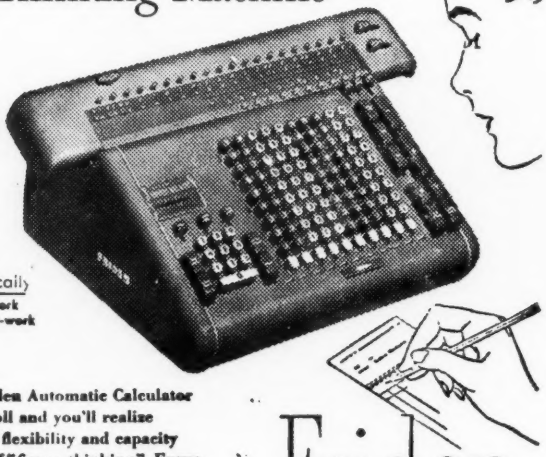

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Guides to Healthy Management

By G. I. MacKENZIE, B.Sc., R.I.A.
Industrial Adviser, Bank of Montreal

Complex business problems can be more readily understood when they are reduced to simple terms. Mr. MacKenzie applies this philosophy in his review of some of the more prominent causes of business distress and how they can be detected in time for corrective action.

Introduction

All of us these days are attempting to keep informed on the rapidly changing business scene. Most of our age group have had some experience with peace-time economies governed by natural economic laws and war-time economies governed by control measures. To-day we have a blend of both types which is a new experience, but according to statements by our national leaders it is a situation which is likely to continue for some time unless disturbed by international developments.

We are certainly not accustomed to, nor trained for, this combination of factors. Therefore it seems inevitable that some problems, at least, will have to be solved by the trial and error method which is both wasteful and time consuming. Waste is always undesirable but passage of time may under the circumstances be a favourable influence if properly utilized. Large industrial projects are in motion and many more are contemplated. New capital investments aimed at harvesting and processing our natural resources are, as you know, in large figures all of which merely accentuates the need for keeping up the production of high-grade management skill.

Most of us have heard the remark that essential requirements in business operations are men, money, and materials. The money and materials are, of course, subservient to the men and will perform their respective functions as directed by the human element. Business success or failure, therefore, depends upon the quality of management and efficiency of the productive effort applied.

In matters of public safety, there is widespread knowledge and acceptance of certain rules or precautionary measures in regard to human welfare. There are also sound rules or precautions applicable to business safety and welfare, but un-

fortunately they sometimes tend to become overlooked or forgotten by management in this high tension era. It might, therefore, be beneficial to recall a few important fundamental relationships that have proved their merit in the past and are likely to continue to be useful management tools in the future.

We are, of course, aware of the fact that, in spite of all the rules for safety, mishaps still occur and, in spite of all the research and scientific analysis that has been devoted to the field of business management, we still have an impressive list of commercial failures every year. These failures crystallize a financial loss of a certain number of dollars which, in itself, is detrimental to the loser, but other consequences are perhaps equally or more important; closing down an industry may affect an entire community and jeoparidze the welfare of employees and their families, merchants, professional services and municipal progress.

Following the business depression of the early thirities, when the rate of business failures was high, the demand was automatically created for more extensive educational programmes to raise the standard of knowledge and skill in the field of business management. Universities began organizing special courses of study and this trend toward a better understanding of management technique, together with specialized training in various phases of business, has probably reached an all time high at the present time. It is perhaps difficult to say whether it is the educational or business organization which is sparking the drive, but regardless of the motivating influence it is very encouraging to observe sustained interest in the production of qualified junior executives who will play the leading role in our economy of the future. It may also be observed that many national organizations, such as the Canadian Chamber of Commerce, the Canadian Manufacturers Association and others have established permanent educational committees under strong leadership to undertake research and stimulate effort generally in the field of business education. The educational departments of the various Provincial Governments have for some time been extending their support to extra-mural education.

Industrial Canada has been growing up quickly and many of the skills required to effectively operate and control the enterprise are in short supply. Intensive training effort is

essential and still unquestionably a sound investment for future welfare.

Business Formula

The general formula for business operations is very simple and reads that income from sales equals fixed costs plus variable costs plus profit. A similar formula may be applied to the affairs of the individual and would read — income from effort or talents equals cost of living plus savings. While these formulae are basically simple, we are well aware that certain complexities can develop thereby necessitating the application of management skill if the word "profit" or "saving" is to be retained in the formulae. When the word profit is removed from the formulae the equation then represents the break-even position and if equality is not achieved then operations are being carried on at a loss. The word "simplicity", when applied to business operations, may be irritating to those who are devoting their best efforts to solve difficult business problems or to overcome frustrating situations, but many of these seemingly complex problems can be reduced to a simple fundamental or basic factor which, if dealt with at that level, will automatically resolve many of the off-shoots and no doubt most of us could recall with benefit the old school-book story about the battle that was lost for want of a horseshoe nail and apply this same analytical technique in dealing with business affairs.

Break-even Point

In working out the business formula to the point of success it is first of all desirable for management to have a full understanding of the various factors and relationships which determine the break-even level of operations. It is readily admitted that the mathematics of volume, cost, capacity and profit relationships are somewhat involved but many formulae have been developed which, if properly applied, will show the results to be expected from specific changes in one or more of these factors. If policy decisions are made without intimate knowledge of this interplay of relationships, the results may well lead to consequences which were entirely unforeseen and when it is borne in mind that one bad policy decision can bring disaster to a healthy concern it is only reasonable and sensible to employ economic facts rather than impulse, in deciding on price changes, production rates, plant expansion, wage negotiations and many other factors which will ultimately affect the net profit figure.

It is not unusual to see business organizations change product designs, add new products to the line, undertake large plant expenditures, stock-pile inventory or accept some abnormal hazard, all on the basis of a causal appraisal rather than on a detailed analysis of results that might be expected over a fairly long term. Companies contemplating expansion or sizable investments in fixed assets would, under the deferred depreciation regulations, be obliged to align their thinking in terms of a considerable future time rather than on the basis of a short term potential.

Working Capital

Working capital is generally understood as simply the surplus of current assets over current liabilities, but one of the most common causes of financial embarrassment in business is a shortage of this commodity.

Improving the working capital position of a company is more difficult at the present time than it was during some previous periods. There has been an almost continual price rise during the post-war years, thereby necessitating the use of more funds for materials and wages, with taxation consuming, on the average, well over 50% of earnings. In spite of the many indications that still more working capital will be required in the future, there has been a tendency to take advantage of certain Government provisions whereby earned surpluses can be removed under favourable tax rates. Many companies have taken advantage of these provisions which, if overdone, will reduce the funds available for operations to the point where it is difficult to meet even temporary emergencies for which credits from other sources are not always readily available in the amounts required. In times of trade or operating difficulties, many companies have found that the current debt is much more real than the current assets. Debt is always a realistic item — reasonably easy to cope with when things are going well, but very embarrassing when repayment is obligatory under conditions of reduced income.

Because of variations in types of business, seasonable and other influences, terms of credit, and policy considerations it would be difficult to specify a suitable ratio between current assets and current debt that would be generally applicable. In order to establish freedom of action in operations, however, it is safer to err on the side of conservation. It has often been observed that banks and other credit agencies advocate a ratio

exceeding 2 to 1 and when due consideration is given to the difficulty of restoring funds that have been depleted either through operating losses or withdrawals it should be evident that maintenance of a comfortable ratio is most desirable.

Equity Capital

The equity capital which is commonly understood to represent the owner's investment is often found to be considerably less than the debts contracted with loaning agencies and trade suppliers. This simply means that creditors have a larger investment in the business than the owners, and one can immediately think of many disadvantages in a situation of this kind. If a company was organized a number of years ago the share capital may have appeared adequate in view of the price levels prevailing at that time, but unless retained earnings have created an earned surplus of some importance, the present relationship between current debt and equity capital is likely to be unbalanced with the creditors providing some permanent capital in addition to the funds required for strictly operating purposes. In such cases the creditors have become senior partners in the enterprise and as such have the right and sometimes the inclination to demand repayment of at least that portion of their funds which are locked up and being used as equity capital by the owners. Creditors realize that this portion of their investment is unlikely to be repaid from retainable earnings — except over a very long period — and the owner therefore may be forced to liquidate the assets or sell the business in order to satisfy creditor claims.

Merchandise

In the ordinary process of doing business, whether it be manufacturing, wholesaling or retailing, one of the most important operations is the purchasing and control of materials. The investment in this item usually makes up a sizeable portion of the total valuation of current assets and it is, therefore, essential that this investment be kept in reasonable relationship to the working capital position.

Perhaps one of the commonest faults displayed by management is overbuying of merchandise, and every year many business concerns are ruined because their management are unable to resist purchasing what appear to be bargains. This tendency is aggravated by supply difficulties, quantity discounts, and lack of appreciation of the cost involved in carrying surplus stocks. It is a rare situation indeed to find bargains in

normal times that warrant purchase of merchandise in excess of regular requirements, and no doubt you have seen examples of distress selling at lower than market prices undoubtedly crystalizing a loss to some organization in the business chain.

Some business executives have unusually good market judgment and might succeed over a term of years in realizing good profits from speculative operations in merchandise if only normal hazards prevailed, but under existing conditions where legislative or international actions can quickly affect normal markets the need for caution is obvious. For less skilled market analysts the hazards are still greater and it is not uncommon to observe balance sheets where merchandise holdings exceed total working capital by substantial amounts. For small companies having a net worth of less than a quarter of a million dollars practical experience indicates the need for particular care or caution when merchandise values exceed 75% of net working capital. Companies with a larger net worth may undertake a somewhat greater risk perhaps up to the point of a 100% ratio, but beyond this level the danger multiplies rapidly even though the ratio of net sales to merchandise is in satisfactory relationship. It is not intended to convey the impression that variances from these ratios will necessarily produce failure or even financial distress, but they are symptoms of trouble which if permitted to continue or worsen may ultimately lead to serious consequences.

Forecasting

While it is common practice in many companies to successfully predict income, expenditures, and profits months in advance, there has been no widespread acceptance of the idea by the great mass of business organizations. In fact there are executives who resist the policy of forecasting on the grounds that variables and unknowns are so numerous that beneficial results would be unlikely. It is appreciated that unknowns may arise and upset a situation temporarily but it is also true that through forecasting many hazards can be anticipated and action taken to minimize their effects.

Business forecasting to be of maximum value must embrace certain essential ingredients some of which are as follows:

(a) The forecast must be carefully prepared, and will require detailed study and analysis on each element in the business formula. For example,

market potentialities would be analyzed from which income would be estimated; necessary expenditures on fixed and variable costs would be tabluated; depreciation would be calculated in accordance with known regulations; and the final result would be an estimate of profits.

(b) All departments and department heads must be made aware of their obligations to operate within the pattern set for them.

(c) Operating results must be produced promptly and accurately at short intervals for comparison with the forecast.

(d) Corrective measures must be applied immediately where important variances occur.

It is only reasonable to expect that the ultimate profit figure will be adequate to ensure a reasonable rate of return on the owner's investment, but it is not enough to merely set down a series of anticipations and then await results until the end of a lengthy period. On the contrary, performance should be checked frequently to ascertain the extent of realization being accomplished, thereby determining the adjustments required to achieve the desired results.

Business Failures

In times of prosperity such as we have experienced during several years past, there is a tendency to underestimate the extent of business distress and perhaps to assume that the hazards of failure are not very great. Unless one follows statistics on business birth rates and death rates, the full significance of these events may not be appreciated. Just as in private life, however, births are cause for rejoicing while deaths mean tragedy to those concerned. Failure of a business to survive is of both personal and economic interest to many people, and if failures reach epidemic proportions then the concern becomes more widespread.

Referring to the Dun and Bradstreet record for 1951 it may be observed that 797 businesses failed in Canada with liabilities of over $19,000,000. Usually two out of every three concerns that fail have a life history of five years or less. Attempts to catalogue the causes of failure indicates that over 80% result from some form of defective management.

Statistics of this nature should serve as a challenge to management to improve the standard of performance, and certainly justifies efforts to seek and adopt ways and means of reducing the mortality rate.

Summary

It would be impossible to anticipate all the contingencies that might arise, hence a list of precautionary measures advocated by anyone would be incomplete. There are scores of hazards that have not been mentioned in this brief outline as it is merely intended to highlight a few of the most common ones occurring particularly in the field of financial management. In summarizing the points covered it is appreciated that many important relationships are not included, but the following observations may have some significance when applied to your own business or personal affairs:

1. Endeavour to reduce complex problems to elementary principles.
2. Keep in mind at all times the fundamental business formula.
3. Establish the break-even point of operations and acquire a full understanding of how this will be affected by variations in business factors.
4. Endeavour to acquire and maintain a strong working capital position.
5. Provide sufficient equity capital to prevent creditors from becoming senior partners.
6. Avoid overbuying of merchandise and maintain a proper relationship between inventory and working capital.
7. Prepare forecasts of operations and maintain an accurate up-to-date record of performance.
8. Have due regard for the realism of debt, in the knowledge that while mechandise and other assets may shrink in value, financial obligations retain their full significance until repaid.
9. Lastly and perhaps one of the most fundamental guides is the one spoken by Micowber in Charles Dickens' "David Copperfield", when he said: Annual income twenty pound — annual expenditure nineteen, nineteen and six — result happiness. Annual income twenty pound — annual expenditure twenty, ought and six — result misery.

Bridging the Gap Between Accounting and Management

By P. W. WRIGHT, F.C.I.S., R.I.A.
Secretary-Treasurer, Shawinigan Chemicals Ltd.

The accounting department is a service department serving all branches of the management organization. In this article, the author emphasizes the need for proper interpretation of information in the light of the purposes for which it is to be used in management control.

In preparing this paper, I have referred to notes and jottings which I have been writing down at various times during the past several years as thoughts came to me, or as I have read articles of interest on management and accounting in various publications. Some of these excellent articles and published addresses appeared in your own magazine, "Cost and Management", and many were published in the bulletins of the National Association of Cost Accountants of the United States. As I am a member of both of the above organizations — the former for more than 25 years — I feel free to draw upon their valuable store of material.

I have chosen to discuss the gap between accounting and management. I am not using the term "gap" in the meaning of a wide divergence of views or sympathies, but as a gap or break in continuity — something to be filled in or bridged. Actually there is no real break but rather occasional small gaps in the approach of accounting to management. The relations between management and accounting are very close and must be kept on a good footing. There are no noticeable gaps when the Accounting Department is rightfully recognized as part of the management team and all management and segments of management in all departments realize the value of the Accounting Department's contribution and make full use of what it has to offer them in the efficient running of their departments.

There are gaps between management and other departments, too, and it is important that they be bridged, but it is extremely important to bridge the gaps with accounting because it is concerned with all departments of the plant as well as all the economic phases of the business.

Historically the initial purpose of the art of Accounting as practised to-day was to provide a systematic body of information about a business for its owners or managers, and it had its beginning, that is, double entry bookkeeping did, some six centuries ago in Italy. To-day facts about a business are made known to others than the owners and managers, but it is interesting to note the close relationship of Accounting to Management since the very beginning of the art. Management itself involves much of accounting — it must be continually conscious both of accounting for the past as a basis for to-day's decisions and action, and of the accounting to be made in the future for the results achieved and to be achieved. The relationships of income and outgo, of profit and loss, of work and performance are continuing management problems. Perhaps a clear dividing line between the accounting and management fields cannot be drawn. Therefore, the gap which we must bridge is more apparent than real.

Accounting was accepted as a branch of higher education on the college level some 30 years ago. The emphasis is still on preparation for public accounting, although in late years excellent industrial and cost accounting courses have been added. The course in Industrial and Cost Accounting sponsored by your own Society leading to the degree of R.I.A. is the only complete course of the kind in North America. Industrial Accounting, or the new name which we are now hearing occasionally — "Management Accounting" — is a branch of accounting distinct, professionally, from Public Accounting. The Journal of Business Education states: "The same basic knowledge of accounting is required by both the management accountant and the public accountant. There is, therefore, no difference in the early phases of the training for the two branches of the profession. Later stages of the training for the two branches emphasize the specialization areas of each."

In the case of the Public Accountant, the keynote of this specialization is *verification,* whereas for the Management Accountant, it is *analysis.* The Public Accountant's field of specialization is *auditing,* while that of the Management Accountant is the compilation of supplementary records which provide analyses of data recorded in the general books in total. These analytical data are of great value to the Management as a basis of control. It is interesting to note that as recently as 1941 the American Institute of Accountants amended its definition of

accounting to include the phrase: " — and interpreting the results thereof."

The work of the Public Accountant is characterized by *hindsight;* he is especially concerned with vertifying the record of what has occurred in a business during the period under review. The work of the Management Accountant requires not only hindsight, but also *foresight;* he is much concerned with planning for the future. This he does by performing the function of budgeting.

Management, as a profession, is now receiving a great deal of attention. Mr. Urwick, of England, is presently one of the most active exponents of scientific management, and is devoting considerable time and is travelling and lecturing extensively in Canada and the United States to promote an academic course in scientific management in our universities. The Canadian Management Council is interested and many of the council members see such a course as an important forward step in the interests of improving management skill for industry, It has been suggested that the course might deal with the basic general principles of management in the first year and then specialize in the different selected branches of management to complete the course.

We are familiar with the special summer courses for senior level management in industry and business held in some of our universities. This plan was originated by the Harvard School of Business Administration.

Objectives of Accounting

We are made aware of the gap between Accounting and Management from time to time when we witness the failure of an accounting report or statement to convey its full meaning to management in a satisfying and convincing manner. I am sure we have all had this sad experience. In failing thus, a report with all the accounting effort that went into it loses all, or at best, the greatest part of its value. It may have been prepared with technical perfection and set out in correct text book form, but it has not been clearly understandable to the man for whom it was prepared. It has failed for the lack of the art of presentation. It has failed to give him the help it should have given — the help which he needs and must have to guide him in the making of wise management decisions. The accountant has been more concerned with the instruments of accounting than with its objectives.

It is to be presumed in this discourse that there is no lack of keenness on the part of management at any level, and no indifference. I must, however, emphasize that even if there is indifference and lack of keenness on the part of management, this affords no alibi for the accountant but only increases the challenge, as it is his responsibility to prepare, constantly improve and present daily, or as necessary, essential statements and reports of such value and in such a compelling manner that they will become indispensable to management. Management for their part have a clear knowledge of what figures can do for them, and a large part of the academic education of business management is taken up with bridging the gap between the accountant and managers.

Because of the essentially close relationship between the Accounting Department and all other departments of the Company, it is well to discuss the question of relationships between all departments. The complicated age in which we are living, with its scientific miracles and its complex systems of governmental regulations, calls for many experts and specialists, sometimes in numbers of departmental proportions. But in training these specialists, we should not bring them along in a narrow field where the industrial engineer knows only industrial engineering, the market analyst knows only market research and the accountant knows only accounting. I believe there is great need now for broadening the training of our key men so that they can understand the inter-relationship of departments and develop a well-rounded business outlook.

Decisions the salesmen make affect the operation of every other department in the Company, and the same is true in varying extent of every key job in the organization. To operate at full professional capacity, the industrial accountant must understand business as a whole — production, sales, and fianance — in order to locate and present that significant information which will serve best to guide Management. All progress is the result of wise management which must be in the light of all the facts, and the accountant is the one who collects and collates the financial facts and results of the plant and business operations and presents them to Management.

The lack of explanatory information in accounting reports is true also of many reports from other departments — a Research Department report, a Plant report, a Personnel report, an Engineering report, and others. There must be explanation

and interpretation to ensure that every line and figure in the report is understandable to the person for whom it has been prepared. For example, a Research Laboratory Report which will be perfectly clear to technically trained men may not be readily understandable to all Management personnel without the addition of explanatory notes. Similarly, a financial report to Management at any level should be provided with footnotes of explanation, or be accompanied by additional clarifying data and interpretations so that it can be clearly understood by those who receive it.

The late Justice Holmes said: "The significance of facts is more important than the facts themselves, and if we know the significance we may even forget the facts."

Co-ordinating the Management Organization for Cost Control

Plant management at all levels from the manager down through the various ranks of supervision to the foremen and thence to the workmen themselves should be cost-minded and *profit-minded.* It is the profit objective of the plant which should and must spark their endeavours. Their jobs, well-being and good living depend on it. The very moment that it becomes apparent that the best total effort of every employee in the plant will result only in breaking even between total cost of the product and the selling price obtainable, the plant must shut down.

As the company prospers, so does every member of the company family. And the public are also interested — a lower and lower price for a better and better product is the result of achieving the profit goal in the company's operations.

Profits have been referred to recently in "Barron's" as "... not some kind of a social dividend paid out to a particular class. They are the vital payment to those who directly or indirectly through hired management bring together the right factors of production to produce the right product at the right time in response to consumer demand. They are the guaranty of continuing consumer sovereignty."

The opportunity is there to teach department heads and all sub-management personnel the competitive nature of industry under the free enterprise system — to explain to them the need for careful control of all those factors which find reflection in the statement of earnings — to inspire them to full cost consciousness and the need to carry this ideal down the line to the last workman on the payroll.

The time checker, or whoever is responsible, must be properly impressed with the importance attached to the accuracy of the labour distribution entered on a time card, and should be aware that far-seeing decisions may be made at some future time on the figures he is supplying at the moment. He must earn the confidence of the foremen and workmen through proven care and accuracy in recording their labour effort.

The foreman is interested in supplies, steam, power and maintenance, and he should be shown by regular reports how successful he has been in bringing these under control.

Cost information is not confined to statements of money values but man-hours, quantities of material consumed and percentages are at times of even greater value — particularly in comparison of performance with previous periods because of variations in the value of the dollar.

Control and reduction of production costs results only when all units of the management organization are geared to the attainment of the plan. The task is not merely the study of reports that are prepared nor is it affected through sporadic cost reduction drives calling for arbitrary reduction of certain expense items. Control must come from everyday alertness to what is happening and everyday cost consciousness on the part of all concerned, with corrective action taken wherever and whenever opportunities for cost reduction arise.

Management, through its vision, desire, and initiative can do much toward attainment of this objective, but in the final analysis it is the role of the accountant to instill this continued cost consciousness and alertness throughout the management organization.

Here are three general types of services which the Industrial Accountant can offer management in the control and reduction of costs. They are:

First — the provision of accounting reports and statistics which reflect or measure operating results and which therefore may stimulate action to be taken by operating sources to improve those results or to maintain them;

Second — appraisal of the effectiveness of cost reduction and control action initiated by other technical personnel so that such efforts can be correctly evaluated in terms of guide lines for the future; and

Third — initiating, themselves, constructive thought and effort which will affect favourably the course of the business.

The Production manager is vitally concerned with the planning of each detail concerning the manufacturing processes and in comparing results against budgetted estimates of cost and performance. The plant accounting system is of vital importance in assisting him in this endeavour. The accountant will have worked with him and with the heads of the departments in preparing the budgets for each separate department and will in turn supply the actual current cost figures from period to period to compare with these budget details and study the reasons for and the import of the variations. The plant accountant should participate in plant management sessions. No plant can be efficient unless the economic aspect is considered and planned for step by step in order that the physical results might be achieved in a way which will ensure the best results to the Company.

Costing originated with the engineers and Cost *Engineering* was a familiar term in the Engineering Department before very much was heard of Cost *Accounting*.

The Purchasing Department is a department of high responsibilities and importance. By the nature of its work, the disbursement of cash for materials and supplies, it is very close to the Accounting Department and because of this is brought even closer to management.

Every department, whether in Production, Sales or Service, must work with and call upon the resources of the Accounting Department, and any gaps which develop must be short-lived and soon bridged. All must work as a team with management in achieving the desired objective.

Accounting is a service function and the Accounting Department is a service organization acting as a member of the management team. It is through team work in assisting management and becoming intimately acquainted with the management's problems, assisting in analyzing them and formulating solutions, that the greatest service is rendered. It is thus by taking their place beside and as a part of management that accountants, together with management personnel, are fitting themselves for earned advancement and promotion in their companies.

Reports to Management

I referred at the outset to the failure of reports at times to convey their full message; therefore it will be in order for me to make some comments in this connection, as the well prepared

and informative report helps greatly in keeping the gaps bridged. The accountant should be careful to see that no word or detail in his report is ambiguous. He must see that every line, figure or group of figures is given whatever supporting information would be helpful in its complete interpretation. Reports should be tailored to the needs of the individual recipient, which would mean that whereas one level of management might receive a comprehensive report on the whole subject, this would be broken into parts for sub-management. No one wants to waste time looking at a sheet or two of detail which is not vital to him and does not contribute to his purpose. Give the essential and looked-for statements regularly and make the figures talk. Other information will, of course, be available in the Accounting Department and can be supplied quickly when called for.

Extra reports if repeatedly called for should be given careful consideration for possible embodiment into the regular permanent report. Special reports are necessary at times and very often the Accounting Department are in a position to prepare these on their own initiative. Items calling for a special report such as this might be: (1) the effect of wage increases on the various elements of cost and inventories; (2) information in connection with inactive or slow-moving stocks.

The use of charts, as some of us know, can be overdone, but certain information kept in the Accounting Department in chart or graphic form or circulated to those interested can be very useful. Trends often are lost in a series of monthly statements but come to life in charts.

Timing and regularity of reports are important. Speed in producing accurate figures is, of course, a basic requisite of the accounting function, but all statements are not needed in the same urgent rush and it is good economy and helpful to a busy department for management in their demand for figures to distinguish between the important and less important.

It should be remembered that it is definitely a responsibility of the Accounting Department to determine what value the figures may have and to issue reports accordingly, rather than wait for somebody to call for figures as the need for certain information arises. If the department has previously determined that certain reports contain an important message and finds that they are not being utilized, such reports should be

revised so that they will more clearly and forcefully present their story. In this way they will no longer be merely figures, but become useful tools.

In one of our U.S. affiliated companies we have an accounting genius. Not only is he an extremely able accountant, but more important to his company is his genius and enthusiasm for turning out statements and reports in great volume, each one of which is a masterpiece of information and clarity. Consequently, the reports are of inestimable value to the management. A complete standard cost system is in use at this plant and the general manager states that he does not know how he could operate the plant without standard costs. There are seldom gaps to be bridged in the accounting-management relations in this plant.

Let us assume that at the end of the accounting period, the Factory Accounting books having been closed, the costing completed and all accounting transactions incorporated into the General Accounts of the company. The Chief Accountant or Comptroller then prepares and presents to management the Balance Sheet and Profit & Loss Statements together with all essential and useful related subsidiary statements. The whole will probably be bound in a folder, labelled and indexed and prepared in several copies for individual distribution. Here again the reporting skill of the accountant is under test. The picture of the current financial condition of the company is in the hands of management for their information and guidance — and even at this top level it is quite certain that all who receive and use the report are not accounting-minded and able, easily, to interpret the statements fully without a fair amount of explanation.

The accountant should have anticipated this and have prepared for it. He should have provided footnotes of explanation wherever in his opinion and from his experience they would be helpful. The practice which some Accounting Departments follow of preparing a preface to the report of several pages summarizing all the highlights of the month, adds a great deal to its value and time-saving assistance to Management, and provides a strong bridge.

To go further — and perhaps I may say, to complete the journey of reporting — let us refer to the vast improvement we have seen in recent years in Company Annual Reports to Stockholders. Great ingenuity has been shown in presenting a wealth

of information in the simplest form so that the real import of the financial figures, comparisons and statements can be easily understood by the stockholders, the employees, and the public.

Conclusion

I hope that in my review of this subject, I have succeeded in imparting some of my own enthusiasm. The Accounting Department is a part of the Management team. The ultimate purpose of accounting is its use in the management of a business. Management cannot function without the aid of accounting. The plant office, with its store of records and exact information concerning all operations, is the pivotal point of our industrial might.

Those concerned with the compiling and maintaining of office records have a major task. In the years ahead, expanding business — in order to survive — must have exact information, and they must have it faster and more accurately than ever before. The Accountant must rise to the occasion. He must do more managing in his own department and provide himself with time to read and think. He must scrap outworn systems and machines, and modernize and streamline his office methods. He must keep abreast of the latest developments in the Industrial Accounting field just as the Operating Departments in the plant of to-day are forced to do in their fields.

Management, too, has become a science. Business and industry cannot stand still. Companies must go forward or they will not survive. In planning for the future and in making decisions for future action, the most valuable aid comes to Management from the records and reports and interpretations of the Accounting Department.

There are no gaps — real or apparent — between an efficient Accounting Department and an alert Management.

What is Statistical Quality Control?

By D. H. W. ALLAN

Metallurgical Department,
The Steel Company of Canada, Limited
Hamilton, Ont.

The use of statistics in quality control is a technique which has not yet been fully applier. The methods of application and conditions under which it can be used to advantage are outlined by the author.

The words "Quality Control" are not new in the industrial vocabulary. Since the inception of mass production techniques, the production man has been faced with certain quality requirements in his product. These requirements have been specified by management, the sales department, the engineering department or some industrial standards organization. Inspection departments have been assigned the function of assuring that these quality requirements are fulfilled.

The usual inspection systems employ post-mortem methods. A product is subjected to inspection after it is completely manufactured, allowing large quantities of poor quality product to be produced before the situation is discovered and corrective action taken. The poor quality product produced is costly since it must be either reworked, scrapped or sold as degraded material.

These inspection systems also cause the inspection department to become a dumping ground for other people's troubles. The inspector has to try and pass material, otherwise he is in trouble with the production personnel, or else, if he passes defective material and there is a customer's complaint, he gets into trouble with management.

The introduction of the words "Statistical Quality Control" or their more familiar initials "S.Q.C." into the industrial vocabulary has opened up a new field of possibilities for overcoming the inherent bad features of the old quality control systems.

The application of statistical thinking and the laws of probability to quality control problems were initiated by Dr. Walter Shewhart of the Bell Telephone Laboratories, in 1924. The first technique developed was Shewhart's "Control Chart"

which was subsequently augmented by the introduction of "Sampling Tables", by the staff of the same laboratories.

These techniques were given wide publicity and used by industry during World War II, through the efforts of the United States War Department Procurement Services. Since then quality control men have formed the young and vigorous American Society for Quality Control, which has three Canadian sections at Toronto, Montreal and London.

Statistical Quality Control consists of three main phases:

1. Analysis of past data.
2. Process Control.
3. Sampling Inspection.

Analysis of Past Data

In most manufacturing plants the collection of quantitative data about the product is a function of the inspection department. Usually large masses of data have been collected which, when analyzed statistically, show the capabilities of machines and processes.

The study of the output of a machine or process to determine its quality capabilities is most important. If a process is capable of meeting the specifications set by management, and with the economy necessary for maintaining acceptable costs, then the quality of the process is good. An automatic screw machine will illustrate this point. If the tolerance on a certain automatic turning is ± 0.001 inch, and the machine can maintain no better than ± 0.002 inch, then the process is not satisfactory and the quality is not good. It may be possible to correct this quality deficiency by overhauling the equipment or changing design tolerances or switching to a different process. If the design tolerances were increased to ± 0.003 inch and the machine can hold to ±0.002 inch, then greater efficiency may be obtained either by running the machine longer between tool sharpenings, or by using an older and less accurate machine.

Once the capabilities of machines and processes have been ascertained in a plant through statistical analysis of past data, the techniques of S.Q.C. are designed to help maintain quality restrictions within the capabilities of the equipment.

Process Control

One of the principal concepts of S.Q.C. is that the product should be inspected at the producing machine. This allows

action to be taken when poor quality product is made, reducing the production of scrap and rework material.

Shewhart's control charts may be varied to apply to processes where the quality characteristics assessed may be either:

1. Measurements.
2. Number of defects per unit of product.
3. Percentage of defective pieces in a given lot.

The rigorous mathematical law of the normal distribution curve is the basis of these charts. The charts have a centre line representing the average quality level and upper and lower control limits, equidistant from the centre line representing the normal chance variation in the quality level. These limits, based on past data, are normally calculated so that the probability of a value falling outside the limits through chance causes alone is three in one thousand. It is therefore, reasonable to suspect that values outside the limits are not caused by chance and should be investigated immediately in order to maintain the process within the limits assigned.

The charts are plotted on a time base so that a continuous picture of the quality performance of the process is created. With the charts placed in full view of the operator and plotted as each value is obtained, the adjustment of the process becomes a matter of following the action signals of the "out-of-control" values.

An example of this would be an automatic machining operation where the average piece produced was one inch in diameter and the control limits, dictated by the capabilities of the machine, were set at $\pm$ 0.005 inch, while the specification called for $\pm$ 0.0055 inch. Before the installation of S.Q.C. the operator would be resetting his machine whenever he produced a piece measuring 1.0055 inch. With the control chart he would not reset his machine until the average value of five pieces exceeded 1.005 inch. The resetting in the first instance could be resulting from a chance occurrence when it was still possible to run the machine without producing defective product. With the control chart no single value controls the action, and as long as group averages fall inside the limits no resetting is required. Thus, by the installation of S.Q.C. the interval between resettings has been increased with a resultant decrease in "down-time" and improvement in the production of good pieces.

Once machines and processes are brought "under control" as shown by the charts, the problem of inspection becomes simplified. Patrol inspection and operator inspection are required to maintain the charts and signal when preventive action is required. Final or outgoing inspection can then offer the most protection for the least effort.

Sampling Inspection

Sampling inspection plans, based on probability theory, are available to guarantee any required outgoing quality level from the inspection of a minimum number of pieces when the quality level of the production process is known.

The efficiency of one hundred per cent inspection has been found to be as low as eighty-five per cent, due mainly to fatigue. Manufacturers, realizing this, are liable to install sampling inspection schemes which are not based on probability theory.

An example of a non-statistical sampling inspection plan was on a product where final inspection involved lots of 22,000 to 110,000 pieces. It had been decided that shipments must not contain over three per cent defective product. The sampling scheme called for a sample of one hundred pieces which must not contain over three defectives, otherwise the lot must be one hundred per cent inspected. It was assumed that this scheme allowed no shipment to contain more than three per cent defective product. In actual fact shipments could contain as high as seven per cent defective product.

If these same lots had been subjected to a statistical sampling plan, a sample of seven hundred and fifty pieces would have been taken and the lot shipped if twenty or less defectives had been found. While the amount of inspection would be greater, management in this case, would be assured of only having one lot in every ten lots which exceeded the three per cent defective level specified.

If these same lots had been produced by a process under statistical control, it would have been possible to reduce the sample size to three hundred pieces and the lot shipped if eighteen or less defectives had been found. This plan would still give management the same protection as the previous plan, but due to the presence of a controlled process, inspection costs would be decreased.

The above examples have discussed statistical sampling plans where a single sample is taken from a lot to decide its

acceptance or diversion to one hundred per cent inspection. Other plans are available deferring acceptance till after a second lot has been inspected when the first lot fails. These plans decrease inspection costs even further without impairing the protection given.

Summary

The answer to the question "What is Statistical Quality Control" is seen to be — the statistical analysis of inspection data, process control through control charts, and the use of sampling plans to insure within set limits the quality level of material passing through an inspection station.

The greatest potential saving in S.Q.C. is the reduction in scrap and rework costs. It must be remembered, however, that it is impossible to inspect quality into a product and that S.Q.C. is only a production service, not a cure-all.

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